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PRESIDENTIAL ADDRESS

RISK MANAGEMENT: THE UNIFYING FRAMEWORK FOR BUSINESS SCHOLARSHIP AND PEDAGOGY

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ABSTRACT

In this article, I provide a brief critical assessment of the intellectual history of risk management and insurance (RMI) as an academic discipline. Although the level of rigor and overall quality of RMI scholarship and pedagogy continue to improve, RMI remains too narrowly focused upon risk management issues specifically affecting insurance markets and institutions. Since risk management is of fundamental importance to virtually all areas of business scholarship and pedagogy, we must seek ways to more broadly apply risk management concepts.

INTRODUCTION

I am a risk management and insurance[1] professor today primarily due to the considerable intellectual influence and encouragement of my friend and mentor, Neil Doherty. Although a number of other colleagues and coauthors have played important roles in my career development, Neil introduced me to risk management and insurance more than 20 years ago while I was a graduate student at the University of Illinois. As my dissertation advisor, Neil opened my mind to how interesting this field can be, and the learning continues as a result of collaborative research efforts.

I come to risk management and insurance from a financial economics perspective. During the early to mid 1980s, academic finance was largely fixated on asset pricing theory, and there was little, if any, interest in risk management. In general, the finance profession at the time seemed quite comfortable with the notion that insurable risks were largely

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[1] The reader should note that the term "risk management and insurance" and its acronym "RMI" appear interchangeably throughout this article.

irrelevant because risk averse investors could efficiently manage such risks through portfolio diversification.[2] Indeed, it was somewhat of a conundrum to financial economists at the time as to why corporate risk management could possibly matter.[3] My doctoral dissertation specifically addressed the effects that corporate insurance contracting has upon firm value (see Garven, 1984), and this topic has subsequently grown into a fruitful area of research.[4] In a nutshell, the literature shows that corporate risk matters because stakeholders other than shareholders tend to hold (relatively undiversified) claims on the firm, and that if these contracts are not well designed, then the firm subjects itself to potentially significant costs related to moral hazard and adverse selection. Furthermore, asymmetries which derive from bankruptcy costs and taxes exert important influences upon corporate risk management decision making.

This article is organized in the following manner. The next section addresses the convergence that has taken place between RMI and finance during my academic career. The third section extends this theme of convergence to a discussion of risk management in the context of other business school disciplines such as management and marketing. My purpose is to convince the reader that risk management is properly viewed as the unifying framework for business scholarship and pedagogy in general. The fourth section briefly considers some important cultural aspects of scholarship and pedagogy which are important to consider as we move forward. Since the convergence perspective has implications for RMI pedagogy as well as scholarship, I address this issue in the fifth section of the article. The sixth section concludes the article.

On the Convergence of RMI and Finance

I attended my first ARIA meeting in 1986, two years after completing my Ph.D. in finance at the University of Illinois. Bob Witt was ARIA's past president at the time, and at his invitation, Cliff Smith gave a lecture entitled "On the Convergence of Insurance and Finance Research" (see Smith, 1986). It is important to note that at the time of Smith's lecture, this convergence was already well underway, e.g., Cummins' (1976) seminal article which studies risk management decision making in a CAPM framework, Main's (1983) article which motivates corporate purchases of insurance on the basis of various tax asymmetries,[5] Doherty and Tiniç's (1981) article which shows that reinsurance is

[2] One of the earlier finance papers which took the corporate demand for insurance seriously was written by Mayers and Smith (1982), who begin their article by invoking the following "theorem": "The corporate form provides an effective hedge since stockholders can eliminate insurable risk through diversification." To their credit, they subsequently develop a set of well reasoned arguments for why firms rationally purchase insurance contracts. Many of the Mayers–Smith arguments are also applicable to an analysis of the more general question of why corporate risk management "matters" for publicly traded firms.

[3] Unfortunately, this view commonly persists today in many academic finance departments, in spite of the substantial risk management literature that has subsequently appeared in many of the top economics, finance, and RMI journals during the course of the past 20–25 years.

[4] For an expository survey of this literature, see MacMinn and Garven (2000). See also the recently published monograph by MacMinn (2005).

[5] Mayers and Smith (1982) also study the effect of tax asymmetries on the corporate demand for insurance. Both the Mayers and Smith (1982) and Main (1983) articles predate by two or more years a well-known and highly cited finance article by Smith and Stulz (1985) which motivates corporate hedging policy (in part) upon tax asymmetries.

valuable for reasons other than insurer risk aversion, and a number of articles applying financial theory to insurance pricing and the so-called fair return problem.[6] In his insightful review article, Loubergé (2000) characterizes the convergence of RMI and finance during the 1970s and 1980s as a "re-orientation" of risk and insurance economics which was deeply influenced by historically significant advances in finance such as option pricing theory. Although it is beyond the scope of this article to survey the "insurance finance" literature,[7,8] the main point that I am trying to make here is that as an academic discipline, risk management and insurance shares much in common with finance as well as economics.[9] Much progress has been made in both RMI and finance scholarship by applying economic, financial, and statistical models to structure problems and using econometric techniques to test hypotheses. It therefore seems pedagogically appropriate (and not the least bit surprising) that RMI faculty typically find themselves affiliated with finance departments at their respective universities, since both fields draw upon common principles.

A particularly valuable intellectual contribution of finance to RMI is the way that it structures and disciplines one's thinking about the relative importance of alternative corporate risk management strategies. Mayers and Smith (1982) note that the corporate form itself is an important risk management tool, since it enables owners of publicly traded corporations to diversify risk in ways that are not readily available to owners of privately held firms. The finance perspective provides a powerful analytic framework for modeling how factors such as the firm's ownership structure, its contracts with suppliers, employees, and customers, and the legal, regulatory, and tax environments shape the risk management decision process.

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[6] See Biger and Kahane (1978), Cummins (1988), Cummins and Harrington (1985), Derrig (1985, 1987, 1989), Doherty and Garven (1986), Fairley (1979), Hill (1979), Hill and Modigliani (1987), Kraus and Ross (1982), and Myers and Cohn (1987). Although several of the articles in this list have publication dates later than 1986, virtually all of them were being circulated as working papers and/or featured at various research conferences, including ARIA, prior to Cliff Smith's lecture in August 1986.

[7] "Insurance finance" is a term which refers to the application of finance to RMI. Similarly, the term "insurance economics" is understood to refer to the application of economics (particularly, the economics of risk and uncertainty) to risk management and insurance. To most readers, the term "insurance finance" is probably not as familiar as the term "insurance economics." Although "insurance finance" is not yet a commonly used term, this is how the Geneva Association characterizes its research program on insurance and finance; e.g., see http://www.genevaassociation.org/InsuranceFinance.htm.

[8] I would point the reader to a number of articles which survey various aspects of the insurance finance literature, all of which appear in Dionne (2000); specifically, Cummins and Phillips (2000) (financial pricing models for insurance), Cummins, Phillips, and Smith (2000) (financial risk management in the insurance industry), Doherty (2000) (management of catastrophe risk), Harrington and Niehaus (2000) (underwriting cycles), MacMinn and Garven (2000) (determinants of the corporate demand for insurance), and Mayers and Smith (2000) (organizational theory and evidence).

[9] Indeed, Loubergé (2000) notes that an important aspect of the development of risk and insurance economics has involved, among other things, "the applications of new financial paradigms, such as contingent claims analysis, to the analysis of insurance firms, insurance markets, and corporate risk management, a development which links more closely insurance economics to financial economics, and insurance to finance."

Convergence between RMI and finance has also been occurring for some time now in practice as well as in theory. Increasingly, we see greater interest in more integrated approaches to solving corporate risk management problems. This change in approach and philosophy has been motivated by a number of factors, including the convergence of insurance and financial markets and the ever-increasing frequency and severity of natural and man-made catastrophes.[10] Indeed, as *The Economist* recently noted, "The business of financing companies is converging with the business of insuring them."[11] Organizationally, firms have responded by putting increased emphasis upon risk management as a core management competency, and in some cases establishing the position of "Chief Risk Officer." The Chief Risk Officer is typically a highly visible, top-level corporate executive who is responsible for ensuring that the firm understands and properly manages its key risks in an integrated and coherent fashion across the entire business enterprise.[12]

Risk Management and Other Business Disciplines

Risk is a central concept underlying virtually every business discipline.[13] Whether they realize it or not, scholars in disciplines outside of RMI and finance regularly develop and work with models which involve important aspects of risk management. Even for a management and marketing novice like me, I found that it was not difficult to identify some representative examples of risk management from these disciplines.

Management theorists typically view risk management as an important aspect of the larger question of strategic management. The strategic management perspective is that risk management is a process whereby the firm "continually search(es) for new sources of advantage through continuous risk taking" (Chatterjee et al., 2003, p. 68). Rather than ask what the firm must do to mitigate a future potential loss, the strategic management literature asks what risks the firm must take *now* in order to secure sustained competitive advantage over rival firms *later*. Therefore, risk taking constitutes an important aspect of the corporate risk management process. The thinking here is that such a strategy, if successful, lowers firm risk by ensuring future growth opportunities.[14] This dynamic

[10] Perhaps the most obvious example of the convergence of insurance and financial markets is the insurance securitization market. See Lane and Beckwith (2006) for a report on recent trends in this market.

[11] See The New Financiers, *The Economist*, September 2, 1999.

[12] This type of integrated approach to risk management is commonly referred to by its practitioners as "enterprise risk management"(see Lam, 1999). Graziano and Aggarwal (2005) note that companies in the energy, financial services, food, and insurance industries have tended to create most of the CRO jobs to date.

[13] Not only is risk management ubiquitous throughout business scholarship, but it is also evident in various ancient writings; e.g., see Aumann (2003), Ecclesiastes 4:9-12, etc.

[14] There is a substantial literature in RMI and finance which studies the role played by financial contracting (e.g., insurance and derivatives) in bonding the firm's future investment decisions. Compared with the strategic management example given here, this literature adopts more of a static view of the firm so that attention can be focused on how financial contracting helps control incentive conflicts between corporate owners and creditors (an incentive control problem exists because of corporate limited liability). In other words, future investment opportunities are exogenously given, but the contact design is endogenous. In the strategic management example, future investment opportunities are endogenous, but the owner/creditor relationship is taken as given. While the strategic management perspective addresses some *dynamic* elements of risk management, like any modeling framework it also has its shortcomings.

perspective of assuming risk now in order to mitigate risk later would seem to be a natural candidate for real options analysis (e.g., see Miller and Waller, 2003).

Wharton marketing professor George Day and strategic management professor Paul Schoemaker have recently published a popular book entitled *Peripheral Vision: Detecting the Weak Signals That Will Make or Break Your Company* (see Day and Schoemaker, 2006). In a recent interview (see *Knowledge@Wharton*, 2006), Day notes that the Day–Schoemaker "peripheral vision" model involves five distinct steps:

1. Scoping (decide where to begin your probe);
2. Scanning (determine the kinds of risks to which you are exposed);
3. Interpret the risk (determine its frequency and severity);
4. Probe hard (pay attention primarily to what would appear to be significant risks, e.g., high severity/low frequency);
5. Take action (i.e., manage the risk).

After reading this interview from the *Knowledge@Wharton* Website, I was struck by how the logical structure of the peripheral vision model is not all that different from the classical Mehr and Hedges (1963) risk management model.[15] In both cases, the risks to which one is exposed are enumerated, and a determination is made concerning the significance of the risk (in terms of its frequency and severity). The primary differences relate to the nature of the risks that are considered, and the nature of the methods that are employed for handling these risks. In RMI and finance, one typically thinks of pure and speculative risks which can be hedged using insurance contracts and/or various types of financial derivatives. In other business disciplines such as management and marketing, the focus is more on strategy-related risks, e.g., loss of market share for one's products and various other competitive risks vis-à-vis rival firms.[16] Risk sharing in this framework is certainly plausible, although by less liquid and less transparent means such as changing organizational structure, launching joint ventures, and merging with other firms.

Since risk management is of fundamental importance to virtually all of the business disciplines, I think that it is important to seek new and innovative ways to more broadly apply risk management concepts, because other disciplines would benefit from a more careful study and application of risk management principles.[17] For example, two well-known topics in marketing include product differentiation and branding. Viewing these

[15] According to Mehr and Hedges (1963), the risk management process includes (1) identifying loss exposures, (2) measuring loss exposures (i.e., determining frequency and severity), (3) evaluating the different methods for handling risk (i.e., risk assumption, risk transfer, and risk reduction), (4) selecting a method, and (5) monitoring results.

[16] It is important to note that the financial consequences of strategic risks can be substantial compared with risks which firms hedge by purchasing insurance or trading derivative securities. Berley (2006) notes that "findings suggest that 65% of market capitalization decline drivers are strategy related—ranging from lower product demand and poor M&A integration, to competition and price declines."

[17] For that matter, RMI research could possibly benefit from incorporating insights from some of these other fields. I can think of at least a couple of examples of dynamic risk management

topics from an insurance economics perspective, it can be shown that properly designed product differentiation and branding strategies may be helpful in mitigating adverse selection and moral hazard costs in product markets which derive from the application of strict liability rules by the tort system (see Garven, 2005).

We should also not neglect opportunities for applying risk management concepts to so-called mainstream topics in finance and economics, as well as public policy issues which transcend traditional insurance markets and institutions. Recently, Steven Shore presented a seminar article at Wharton (see Shore, 2006) in which he empirically shows how risk sharing within marriages enables households to smooth out business cycle effects, a result which has potentially important implications for business cycle theory. On the public policy front, Doherty (2005) provides an innovative example of how to embed state-of-the-art thinking about the management of catastrophe risk into the broader context of economic development strategies.

Getting Some Respect

Since risk and its management are so pervasive throughout the various business school disciplines, why is it that we "don't get no respect" at times?[18] Even the most casual reading of ARIA presidential addresses from the recent as well as distant past reveals that this has been an ongoing concern shared by ARIA members for at least the past couple of generations.[19] At a number of academic institutions (including one at which I once held a faculty appointment), the relationship between RMI and finance can be particularly acrimonious at times, which is rather ironic in view of the convergence between RMI and finance discussed earlier. In his 1985 ARIA presidential address (see Witt, 1986), Bob Witt notes, among other things, the importance of objectivity in the advancement of the RMI research agenda, arguing that there should not be "any bias for or against any specific methodology or ideology."[20] He goes on to note that

> such objectivity is important in order to encourage new ideas and to prevent ideology from becoming a form of theology in our discipline. Some related disciplines appear to have developed some theological problems recently (Witt, 1986, p. 12, footnote 3).

Although I did not know Bob Witt when he originally made these comments, I am quite certain that the primary "related" discipline to which Bob was referring is the finance

that (to my knowledge) have not been explored in the published literature, e.g., using real options theory to model optimal claiming behavior in property-liability insurance or analyzing the choice between cash value life insurance versus an unbundled approach in which one buys term life insurance and invests the difference.

[18] Apologies to Rodney Dangerfield!

[19] An early example can be found in Hedges (1961), who notes the publication in 1959 of two studies which "questioned the importance of insurance as a subject of study" and essentially ignored risk and insurance in their recommendations of "essential subject matter" for business school curricula.

[20] In his presidential address, Bob Witt also suggested new names for the JRI (the *Journal of Risk and Insurance Economics*) and ARIA (the *American Risk and Insurance Economics Association*). Since his JRI/ARIA renaming proposal obviously never gained much atraction, I promise that I will not launch a campaign to rename the JRI the *Journal of Risk and Insurance Finance* and/or ARIA the *American Risk and Insurance Finance Association*!

discipline. I cannot help but wonder whether Bob had Larry Summers' critique of financial economics (see Summers, 1985) in mind as he prepared his own ARIA presidential address. The basic premise of Summers' article is that although finance is sometimes defined as a "subfield" of economics, financial economists and "general" economists have developed two distinct cultures that substantially limit scientific progress "on major questions which fall into the interstices between standard finance and economics approaches." Summers also notes the following consequences of this cultural divide between economics and finance:

> Researchers in economics examine questions involving financial markets, in ways which seem to researchers in finance to be hopelessly misguided. Much research in finance is regarded by many economists as doctrinaire or trivial . . . most researchers operating in one tradition are almost entirely ignorant of basic concepts in the rival tradition (Summers, 1985, p. 633).

Although much has changed since Summers wrote these words, it is worthwhile noting that economists have historically tended to hold a rather low opinion of finance as an academic discipline. Mehrling's (2005) biography of Fischer Black provides some interesting historical anecdotes in this regard; e.g., he notes that as a graduate student in economics, Stephen Ross was given the following warning against switching from economics to finance: "Finance is to economics as osteopathy is to medicine." Interestingly, Black and Scholes (1973) apparently never gave serious consideration to publishing their famous option pricing article in a finance journal, choosing instead the *Journal of Political Economy*. Mehrling (2005) notes:

> They could have tried finance journals, but the kind of finance they were doing was outside the rubric of finance as it was then organized. There was a reason for the economist's low opinion of finance, and that reason was the low analytical level of most of the work being done in the field. Finance was at that time substantially a descriptive field, involved mainly with recording the range of real-world practice and summarizing it in rules of thumb rather than analytical principles and models.

Financial economists (as well as many other of our academic peers) have tended to hold a low opinion of RMI as an academic discipline for essentially similar reasons. Although the level of rigor and overall quality of RMI scholarship and pedagogy have improved substantially over time, a bias remains at many colleges and universities toward more of a descriptive and nonscientific rather than analytic perspective. If we are indeed serious about creating and advancing knowledge in risk management and insurance, then we need to adopt correspondingly high standards for ourselves and our students.[21]

[21] For this reason, I take issue with the arguments recently advanced by Dorfman and Tippins (2006), who recommend supplementing the science-based approach to RMI (based upon applying economic, financial, and statistical models to structure problems and using econometric techniques to test hypotheses) with "softer," more descriptive legal-forensic, behavioral-psychological, literary-journalist-artistic, and religious-philosophical approaches. Although these forms of "research" may be appropriate for publication in industry trade journals and other nonrefereed outlets, they generally do not represent compelling alternatives to the science-based

Implications of Convergence for Pedagogy

Ten years ago, Bruce Palmer opened his ARIA presidential address with the following observation:

> I'm sure that, in preparing their remarks, my predecessors reread many of the previous ARIA presidential addresses (Palmer, 1997, p. 13).

I decided to follow Dr. Palmer's advice, and one address in particular stood out more than the others. This was an address given at the 1969 ARIA meeting by Dr. Mark Greene (see Greene, 1969). Although Dr. Greene's address was given nearly 40 years ago, several of the issues he raised remain as applicable today as they were in 1969. Dr. Greene's vision for ARIA was based upon what he referred to as a "5-Step Program," and I would like to call your attention to steps 1 and 4 in particular:

- Step 1: "We need to encourage increased quantity and quality of new and objective research in risk, risk theory, risk management, and insurance. Research should be directed also at potential application of the risk concept in all areas of business administration—not just insurance. Emphasis should be focused on interdisciplinary problems, thus revealing the pervasive effect of our discipline on other fields.
- Step 4: "We need to develop a better conceptual teaching framework for our discipline, which has tended to depend too heavily on insurance industry practices and problems"

Since I have already discussed implications of convergence for scholarship (Greene's step 1) in the second and third sections of this article, I turn next to pedagogy (Greene's step 4).

Although a number of truly outstanding risk management programs are represented within ARIA, I would like to call your attention to Georgia State University's RMI program in particular. By consistently producing high quality risk management research characterized by depth as well as breadth, GSU's RMI department has successfully managed to make itself the focal point for risk management research and education at the Robinson School of Business. Our colleagues at GSU have staked a legitimate intellectual claim to risk management by earning the respect of their academic peers throughout the business school, especially finance. Apparently their finance colleagues understand that there is more to risk management than just financial risk management, and that there are advantages to having a separate department offer a more comprehensive risk management perspective. This outcome could not have been possible without their steadfast commitment to high quality scholarship and pedagogy.

This raises an obvious question for the rest of us; specifically, what must we do in order to raise the stature of risk management in our respective institutions? The necessary (although not sufficient) condition is to stake our own legitimate intellectual claims to risk management right where we are, by pursuing excellence in scholarship and pedagogy.

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approach for publication in peer reviewed journals, and they certainly do not garner respect from our academic peers.

We need to devote ourselves to designing innovative courses which are interdisciplinary and integrative in nature.[22] Take advantage of resources such as the Huebner Foundation and Geneva Association Website (located at http://www.huebnergeneva.org) which serves as a clearinghouse for course syllabi as well as working articles in insurance economics and risk management. If you have not already contributed your own work to this Website, please consider doing so whenever you prepare for your classes.

We are also very fortunate to have a faithful partner in the Griffith Foundation, whose primary mission is to promote the teaching and study of risk management and insurance at colleges and universities. Their recent Enterprise Risk Management Academic Symposium[23] was specifically designed to provide a scholarly forum for exploring the theories and current practices of this new emerging discipline, and to encourage further ERM scholarship and curriculum development. Going forward, the Griffith Foundation expects to host more RMI academic forums for the purpose of fostering creative collaboration and stimulating innovative thinking amongst RMI academics.

CONCLUDING REMARKS

Because of the pervasive nature of risk and its management, the intellectual legitimacy of the risk management and insurance discipline will remain at risk unless we can offer a more comprehensive risk management perspective to our academic peers as well as students. This cannot be accomplished in any way other than pursuing excellence in scholarship and pedagogy as we seek to more broadly apply risk management concepts beyond many of the traditional risk management and insurance boundaries.

REFERENCES

Aumann, R., 2003, Risk Aversion in the Talmud, *Economic Theory*, 21: 233-239.

Berley, S., 2006, ERM: Time to Catch the Wave, *Risk Management Magazine*, April.

Biger, N., and Y. Kahane, 1978, Risk Considerations in Insurance Ratemaking, *Journal of Risk and Insurance*, 45(1): 121-132.

[22] Allow me to shamelessly plug my own "business risk management" course at Baylor University as an example of what I have in mind here. Besides providing RMI students with an appropriate "capstone" course for their major, many finance and economics students are attracted to this course because of the unique manner in which it applies and integrates finance and economics with the theory of risk. The course also draws upon other business disciplines, including aspects of management, marketing, information systems, and accounting. Here is an alphabetically ordered list of some representative examples of topics (and related disciplines) covered in this course: (1) adverse selection theory (economics), (2) moral hazard and agency theory (economics and finance), (3) behavioral decision theory (management and economics), (4) corporate demand for insurance and risk management (RMI), (5) derivative pricing applications, particularly Black–Scholes and put–call parity (finance), (6) expected utility theory (economics), (7) executive compensation (finance, economics, and management), (8) marginal costs and benefits (economics), (9) model building using tools such as Excel and Mathematica (information systems), (10) probability and statistics (finance and economics), (11) product branding and differentiation as risk management strategies (marketing), (12) risk aversion measures and concepts (economics), and (13) tax treatment and income smoothing (accounting and economics).

[23] The Enterprise Risk Management Academic Symposium was held August 24–26, 2006 in Columbus, Ohio. This Symposium was jointly sponsored by The Griffith Foundation, the American Risk and Insurance Association, and the Fisher College of Business at The Ohio State University.

Black, F., and M. Scholes, 1973, The Pricing of Options and Corporate Liabilities, *Journal of Political Economy*, 81: 637-659.

Chatterjee, S., R. M. Wiseman, A. Fiegenbaum, and C. E. Devers, 2003, Integrating Behavioural and Economic Concepts of Risk into Strategic Management: The Twain Shall Meet, *Long Range Planning*, 36(1): 61-79.

Cummins, J. D., 1976, Risk Management and the Theory of the Firm, *Journal of Risk and Insurance*, 43(4): 587-609.

Cummins, J. D., 1988, Risk-Based Premiums for Guaranty Funds, *Journal of Finance*, 43(4): 823-839.

Cummins, J. D., and S. E. Harrington, 1985, Property-Liability Insurance Rate Regulation: Estimation of Underwriting Betas Using Quarterly Profit Data, *Journal of Risk and Insurance*, 52(1): 16-43.

Cummins, J. D., and R. D. Phillips, 2000, Applications of Financial Pricing Models in Property-Liability Insurance, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 621-655.

Cummins, J. D., R. D. Phillips, and S. D. Smith, 2000, Financial Risk Management in the Insurance Industry, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 565-591.

Day, G. S., and P. J. H. Schoemaker, 2006, *Peripheral Vision: Detecting the Weak Signals That Will Make or Break Your Company* (Boston: Harvard Business School Press).

Derrig, R. A., 1985, The Effect of Federal Taxes on Investment Income in Property-Liability Ratemaking, ARIA 1985, Annual Meeting, Vancouver, British Columbia, Canada.

Derrig, R. A., 1987, The Use of Investment Income in Massachusetts Private Passenger Automobile and Workers' Compensation Ratemaking, in: J. D. Cummins and S. E. Harrington, eds., *Fair Rate of Return in Property-Liability Insurance* (Hingham, MA: Kluwer-Nijhoff).

Derrig, R. A., 1989, Solvency Levels and Risk Loadings Appropriate for Fully Guaranteed Property-Liability Insurance Contracts: A Financial View, in: J. D. Cummins and R. A. Derrig, eds., *Financial Models of Insurance Solvency* (Boston: Kluwer Academic Publishers).

Dionne, G., 2000, *Handbook of Insurance* (Boston: Kluwer Academic Publishers).

Doherty, N. A., 2000, Innovation in Corporate Risk Management: The Case of Catastrophe Risk, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 503-539.

Doherty, N. A., 2005, Hedging Disasters in Emerging Countries: The Roles of Reinsurance and Capital Markets, World Bank Conference, Istanbul, Turkey.

Doherty, N. A., and J. R. Garven, 1986, Price Regulation in Property-Liability Insurance: A Contingent Claims Approach, *Journal of Finance*, in: G. Dionne and S. Harrington, eds., 41(5): 1031-1050. (Reprinted *Foundations of Insurance Economics* (Norwell, MA: Kluwer Academic Publishers, 1991), pp. 572-591).

Doherty, N. A., and S. M. Tiniç, 1981, Reinsurance under Conditions of Capital Market Equilibrium: A Note, *Journal of Finance*, 36(4): 949-953.

Dorfman, M. S., and S. C. Tippins, 2006, An Examination of Alternative Approaches to Risk Management and Insurance Research, *Risk Management and Insurance Review,* 9(1): 63-74.

Fairley, W. B., 1979, Investment Income and Profit Margins in Property-Liability Insurance: Theory and Empirical Results, *Bell Journal of Economics*, in: J. D. Cummins and S. E. Harrington, eds., 10(1): 192-210. (Reprinted *Fair Rate of Return in Property-Liability Insurance* (Boston: Kluwer-Nijhoff, 1987)).

Garven, J. R., 1984, *Corporate Insurance Contracting and the Value of the Firm*, Unpublished Ph.D. Dissertation, University of Illinois.

Garven, J. R., 2005, Moral Hazard, Adverse Selection, Tort Liability, *Journal of Insurance Issues*, 28(1): 1-13.

Graziano, C., and R. Aggarwal, 2005, C-suites Gaining Another Member, *Financial Executive*, 21(7): 42-44.

Greene, M. R., 1969, Doctoral Education for Risk and Insurance in Leading U.S. Universities, *Journal of Risk and Insurance*, 36(5): 505-513.

Harrington, S. E., and G. Niehaus, 2000, Volatility and Underwriting Cycles, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 657-686.

Hedges, J. E., 1961, Presidential Address, *Journal of Risk and Insurance*, 28(1): 1-5.

Hill, R. D., 1979, Profit Regulation in Property-Liability Insurance, *Bell Journal of Economics*, 10(1): 172-191.

Hill, R. D., and F. Modigliani, 1987, The Massachusetts Model of Profit Regulation in Non-Life Insurance: An Appraisal and Extension, in: J. D. Cummins and S. E. Harrington, eds., *Fair Rate of Return in Property-Liability Insurance* (Boston: Kluwer-Nijhoff).

Knowledge@Wharton, 2006, Podcast: George Day: Keeping an Eye on Distant Events that Can Make or Break Your Company (May 10): http://knowledge.wharton.upenn.edu/article.cfm?articleid=1475.

Kraus, A., and S. A. Ross, 1982, The Determination of Fair Profits for the Property-Liability Insurance Firm, *Journal of Finance*, in: J. D. Cummins and S. E. Harrington, eds., 37(4): 1015-1028. (Reprinted *Fair Rate of Return in Property-Liability Insurance* (Kluwer-Nijhoff, Boston, 1987)).

Lam, J., 1999, Enterprise-Wide Risk Management and the Role of the Chief Risk Officer, *ERisk.com*.

Lane, M. N., and R. Beckwith, 2006, How High Is Up? The 2006 Review of the Insurance Securitization Market, Lane Financial L.L.C. Publication (April).

Loubergé, H., 2000, Developments in Risk and Insurance Economics: The Past 25 Years, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 3-33.

MacMinn, R. D., 2005, *The Fisher Model and Financial Markets* (Hackensack, NJ: World Scientific Publishing Company).

MacMinn, R. D., and J. R. Garven, 2000, On Corporate Insurance, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 541-564).

Main, B. G. M., 1983, Corporate Insurance Purchases and Taxes, *Journal of Risk and Insurance*, 50(2): 197-223.

Mayers, D., and C. W. Smith, Jr., 1982, On the Corporate Demand for Insurance, *Journal of Business*, 55(2): 281-296.

Mayers, D., and C. W. Smith, 2000, Organizational Forms Within the Insurance Industry: Theory and Evidence, in: G. Dionne, ed., *Handbook of Insurance* (Boston: Kluwer Academic Publishers), pp. 689-707.

Mehr, R., and B. Hedges, 1963, *Risk Management in the Business Enterprise* (Homewood, IL: Irwin).

Mehrling, P., 2005, *Fischer Black and the Revolutionary Idea of Finance* (Hoboken, NJ: John Wiley & Sons, Inc.).

Miller, K. D., and H. G. Waller, 2003, Scenarios, Real Options and Integrated Risk Management, *Long Range Planning*, 36(1): 93-107.

Myers, S., and R. Cohn, 1987, A Discounted Cash Flow Approach to Property-Liability Insurance Rate Regulation, in: J. D. Cummins and S. E. Harrington, eds., *Fair Rate of Return in Property-Liability Insurance* (Boston: Kluwer-Nijhoff).

Palmer, B. A., 1997, It's the *Impact*, Stupid!, *Journal of Risk and Insurance*, 64(1): 13-18.

Shore, S. H., 2006, For Better, For Worse: Marriage and the Business Cycle, Working paper, The Wharton School (April).

Smith, C. W., Jr., 1986, On the Convergence of Insurance and Finance Research, *Journal of Risk and Insurance*, 53(4): 693-717.

Smith, C. W., and R. M. Stulz, 1985, The Determinants of Firms' Hedging Policies, *Journal of Financial and Quantitative Analysis*, 20(4): 391-405.

Summers, L. H., 1985, On Economics and Finance, *Journal of Finance*, 40(3): 633-635.

The Economist, 1999, The New Financiers, (September 2).

Witt, R. C., 1986, The Evolution of Risk Management and Insurance: Change and Challenge, *Journal of Risk and Insurance*, 53(1): 9-22.